

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference NUP-012PC	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2008/082503	International filing date (day/month/year) 05/11/2008	(Earliest) Priority Date (day/month/year) 05/11/2007
Applicant CONTOUR SEMICONDUCTOR, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the International application in the language in which it was filed  
☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (see Box No. III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant  
☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant  
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1  
☒ as suggested by the applicant  
☐ as selected by this Authority, because the applicant failed to suggest a figure  
☐ as selected by this Authority, because this figure better characterizes the invention  
b. ☐ none of the figures is to be published with the abstract

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2008/082503

A. CLASSIFICATION OF SUBJECT MATTER  
INV. G11C13/00 G11C16/02 G11C17/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G11C HO1L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/021176 A1 (HOGAN JOSH N [US] HOGAN JOSHUA N [US]) 30 January 2003 (2003-01-30)	1,10-13
Y	paragraphs [0015] - [0026]; figure 1	2-9,14
Y	EP 0 202 892 A (FUJITSU LTD [JP]) 26 November 1986 (1986-11-26) column 1, line 44 - column 2, line 14; figures 3a-3b column 7, line 15 - column 10, line 19	14
Y	US 2007/228383 A1 (BERNSTEIN KERRY [US] ET AL) 4 October 2007 (2007-10-04) paragraphs [0019], [0025]	2-9
A	US 2006/233082 A1 (LEE MING H [TW] ET AL) 19 October 2006 (2006-10-19) paragraphs [0027] - [0029]; figures 1,2	1-14
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☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

### Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*G\* document member of the same patent family

Date of the actual completion of the international search

19 February 2009

Date of mailing of the international search report

25/02/2009

Name and mailing address of the ISA/

European Patent Office, P.B. 5816 Patentlaan 2  
NL - 2280 HV Rijswijk  
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Authorized officer

Czarik, Damien

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2008/082503

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2006/013029 A1 (SHEPARD DANIEL R [US] SHEPARD DANIEL ROBERT [US]) 19 January 2006 (2006-01-19) figure 6	1,9
A	US 2005/105371 A1 (JOHNSON MARK G [US] ET AL) 19 May 2005 (2005-05-19) the whole document	1-14

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2008/082503

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003021176 A1	30-01-2003	CN 1399282 A DE 60206230 T2 EP 1288957 A2 JP 3989781 B2 JP 2003109394 A KR 20030014572 A TW 223270 B	26-02-2003 20-07-2006 05-03-2003 10-10-2007 11-04-2003 19-02-2003 01-11-2004
EP 0202892 A	26-11-1986	DE 3675815 D1 JP 61292296 A US 4757475 A	10-01-1991 23-12-1986 12-07-1988
US 2007228383 A1	04-10-2007	US 2008259671 A1 US 2007283298 A1	23-10-2008 06-12-2007
US 2006233082 A1	19-10-2006	NONE	
US 2006013029 A1	19-01-2006	NONE	
US 2005105371 A1	19-05-2005	NONE	

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

## PCT

see form PCT/ISA/220

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

#### FOR FURTHER ACTION See paragraph 2 below

International application No.  
PCT/US2008/082503

International filing date (day/month/year)  
05.11.2008

Priority date (day/month/year)  
05.11.2007

International Patent Classification (IPC) or both national classification and IPC  
INV. G11C13/00 G11C16/02 G11C17/06

Applicant  
CONTOUR SEMICONDUCTOR, INC.

#### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

#### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

#### 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office - P.B. 5818 Patentlaan 2  
NL-2280 HV Rijswijk - Pays Bas  
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl  
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Date of completion of  
this opinion

See form  
PCT/ISA/210

Authorized Officer

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US2008/082503

**Box No. I Basis of the opinion**

1. With regard to the **language**, this opinion has been established on the basis of:
  - ☒ the international application in the language in which it was filed
  - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ on paper
    - ☐ in electronic form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in electronic form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US2008/082503

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	<u>2-9,14</u>
	No: Claims	<u>1,10-13</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-14</u>
Industrial applicability (IA)	Yes: Claims	<u>1-14</u>
	No: Claims	

2. Citations and explanations

see separate sheet

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/US2008/082503

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1. The application does not meet the requirements of Article 6 PCT, because claims 1-4 and 9 are not clear.

Said claims mainly lack clarity because the meaning given to the term "layer" in this application is ambiguous.

In claim 1 the reader has the impression that the claimed memory device consists of different layers of circuitry stacked on top of each other, as suggested by the description §31 and figure 6. However, claim 2 recites that the first and third layers are different, giving the impression that in claim 1, they could also be identical. In the later case, it seems difficult to use the term layer. Claim 9 further increases the ambiguity by introducing "physical layers". Finally, the description is not of great help to the reader either. It sometimes contradicts itself - for example in §8, all layers comprise decoding circuitry while in §10 only one layer is dedicated to decoding circuitry- and it adds metallisation layers, stacks and areas to the list of potential meanings for the term "layer" used in claim 1.

2. Reference is made to the following documents cited in the International Search Report:

D1: US 2003/021176 A1 (HOGAN JOSH N [US] HOGAN JOSHUA N [US]) 30 January 2003 (2003-01-30)

D2: EP-A-0 202 892 (FUJITSU LTD [JP]) 26 November 1986 (1986-11-26)

D3: US 2007/228383 A1 (BERNSTEIN KERRY [US] ET AL) 4 October 2007 (2007-10-04)

D4: US 2006/233082 A1 (LEE MING H [TW] ET AL) 19 October 2006 (2006-10-19)

3. Furthermore, the above-mentioned lack of clarity notwithstanding, the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT, and therefore the criteria of Article 33(1) PCT are not met.



**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/US2008/082503

With reference to the above mentioned lack of clarity, it was considered that the first, second, and third layers could all be the same, i.e. the entire memory device of claim 1 could be in one single "physical" layer.

Therefore D1 deprives claim 1 of novelty as it discloses a solid state OTP memory device comprising a storage array (D1, 10 in fig. 1) and diode based row and column address decoders (D1, 12 and 14 in fig. 1), each decoder being driven by address drivers (D1, 24 and 30 in fig. 1).

4. Furthermore the memory device of D1 being a diode based memory it deprives claims 10-13 of novelty too.

Using a transistor driver to drive bit lines / word lines, as suggested in claims 5-8 and 14 is not considered inventive, even in combination with diode based decoders. Neither is the choice of the type and/or technology of said transistor. (See document D2)

Finally, regarding dependent claims 2-4 and 9, splitting a (phase change ) memory over several physical layers is know from the prior as well and not considered inventive either (see documents D3 and D4).

Possible steps after receipt of the international search report (ISR) and written opinion of the International Searching Authority (WO-ISA)

General information	For all international applications filed on or after 01/01/2004 the competent ISA will establish an ISR. It is accompanied by the WO-ISA. Unlike the former written opinion of the IPEA (Rule 66.2 PCT), the WO-ISA is not meant to be responded to, but to be taken into consideration for further procedural steps. This document explains about the possibilities.
Amending claims under Art. 19 PCT	Within 2 months after the date of mailing of the ISR and the WO-ISA the applicant may file amended claims under Art. 19 PCT directly with the International Bureau of WIPO. The PCT reform of 2004 did not change this procedure. For further information please see Rule 46 PCT as well as form PCT/ISA/220 and the corresponding Notes to form PCT/ISA/220.
Filing a demand for international preliminary examination	<p>In principle, the WO-ISA will be considered as the written opinion of the IPEA. This should, in many cases, make it unnecessary to file a demand for international preliminary examination. If the applicant nevertheless wishes to file a demand this must be done before expiry of 3 months after the date of mailing of the ISR/ WO-ISA or 22 months after priority date, whichever expires later (Rule 54bis PCT). Amendments under Art. 34 PCT can be filed with the IPEA as before, normally at the same time as filing the demand (Rule 66.1 (b) PCT).</p> <p>If a demand for international preliminary examination is filed and no comments/amendments have been received the WO-ISA will be transformed by the IPEA into an IPRP (International Preliminary Report on Patentability) which would merely reflect the content of the WO-ISA. The demand can still be withdrawn (Art. 37 PCT).</p>
Filing informal comments	After receipt of the ISR/WO-ISA the applicant may file informal comments on the WO-ISA directly with the International Bureau of WIPO. These will be communicated to the designated Offices together with the IPRP (International Preliminary Report on Patentability) at 30 months from the priority date. Please also refer to the next box.
End of the international phase	At the end of the international phase the International Bureau of WIPO will transform the WO-ISA or, if a demand was filed, the written opinion of the IPEA into the IPRP, which will then be transmitted together with possible informal comments to the designated Offices. The IPRP replaces the former IPEA (international preliminary examination report).
Relevant PCT Rules and more information	Rule 43 PCT, Rule 43bis PCT, Rule 44 PCT, Rule 44bis PCT, PCT Newsletter 12/2003, OJ 11/2003, OJ 12/2003